# National Fire Danger Rating System (NFDRS) Forecasts

The NWS provides weather forecasts for parameters that permit the NFDRS software to predict the next day's fire danger indices *that the land management agencies utilize for fire management decision support.*

*Criteria for Issuance* – NWS will issue daily forecasts for use by the NFDRS during periods determined in consultation with land management agencies. Dates during which these forecasts are needed vary by year and by office.

NWS NFDRS trend or point forecasts are usually available to fire agencies by 1500 LST/1600 LDT/2300 Z. *The goal of the land management agencies is to provide quality observations in a timeframe that provides the NWS an hour to review the NFDRS observations and publish the forecasts. In order to meet these goals, the daily NFDRS fire weather observations must be made available to the NWS from WIMS in collectives by 1400 LST/1500 LDT/2200Z.* NFDRS stations that do not have valid observations available in WIMS on time will not have next day fire danger indices available.

The observation data that the land management agencies utilize for NFDRS outputs is typically available to the agencies between 1300 LST/1400 LDT/ 2100 Z and 1340 LST/1440 LDT/2140 Z. To facilitate timely delivery of the NFDRS observations to the NWS, the agencies must strive to have their local quality control and data entry completed in WIMS by 1340 LST/1440 LDT/2140 Z. Collectives are run at 10-minute intervals beginning at 1330 LST/1430 LDT/ 2130 Z, with the last collective run at 1410 LST/1510 LDT/2210 Z. Depending on local needs, these times can vary. *It is important that land management agencies and their supporting WFO discuss and mutually agree to the timeframes that best meet their collective needs.*

Users who fail to meet the last collective, and want an NFDRS forecast for the following day, must coordinate with their local WFO to try and arrange for an updated forecast. Solutions to on-going timeliness problems should be coordinated between the local user, WFO and GACC Predictive Services Unit.

NWS forecasters should contact USFS Fire & Aviation Management Helpdesk (24/7) in Boise, ID (1-800-253-5559) for assistance in dealing with WIMS issues.

*Content and Format* – Complies with NWSI 10-401.

*Procedures* – For every NFDRS observation received from WIMS at the 1400 LST (1500 LDT) collective, forecast weather parameters for 1300 LST (1400 LDT) the next day will be produced. This will occur through zone trend, station trend, or station specific (point) forecasts. Regardless of the forecast methodology, forecast values for NFDRS stations should not unduly deviate from historical possibility for those stations. For this reason, zone and station trend forecasts are usually favored over station specific (point) forecasts.

*10-Hour Fuel Moisture Trends* – The U.S Forest Service Region 5 (California) uses the Sale Activity Level (SAL) Program to regulate timber sales and other contracts on public lands. SAL uses forecast 10-minute wind speed trend and forecast 10-hour fuel stick trend. As a result, a 10-hour fuel moisture trend should be provided by the NWS. In order for this to occur, the NFDRS trend forecast should make no entries in the trend forecast for maximum and minimum temperature or maximum and minimum relative humidity, but instead it should include a 10-hour fuel moisture trend.

If no entry is made for the forecast 10-hour fuel moisture trend, WIMS will use computed 10-hour fuel moisture from an algorithm and will determine a trend. Problems arise with this approach since the trend

varies from station to station and the computed value is lower than what would be provided from a weighed stick. This results in a higher SAL number and more restrictions.

NFDRS Collective and Bulletin Times (local variations allowed depending on need)

| WFO | GATEWAY Routine | Header | 1st OBS Collective | 2nd OBS Collective | Forecast Observations | GATEWAY Routine | Header | Observed NFDRS Indices Bulletin #1 | Observed NFDRS Indices Bulletin #2 | Forecast NFDRS Indices Bulletin |
|---|---|---|---|---|---|---|---|---|---|---|
| Eureka | SENDOBS | SHUS66 | 2130 | 2215 | 2245 | SENDNFDR | FNUS46 | 2130 | 2205 | 2245 |
| Hanford | SENDOBS | SHUS66 | 2130 | 2205 | 2245 | SENDNFDR | FNUS46 | 2145 | | 2245 |
| Las Vegas | SENDOBS | SHUS65 | 2115 | 2145 | 2245 | SENDNFDR | FNUS45 | 2100 | | 2145 |
| Los Angeles | SENDOBS | SHUS66 | 2130 | 2200 | 2245 | SENDNFDR | FNUS46 | 2130 | 2200 | 2245 |
| Medford | SENDOBS | SHUS66 | 2155 | 2155 | 2305 | SENDNFDR | FNUS46 | 2200 | | 2245 |
| Monterey | SENDOBS | SHUS66 | 2130 | 2200 | 2245 | SENDNFDR | FNUS46 | 2130 | 2200 | 2245 |
| Phoenix | SENDOBS | SHUS65 | 2115 | 2200 | 2245 | SENDNFDR | FNUS45 | 2115 | 2155 | 2245 |
| Reno | SENDOBS | SHUS65 | 2145 | 2145 | 2255 | SENDNFDR | FNUS45 | 2145 | | 2245 |
| Sacramento | SENDOBS | SHUS66 | 2145 | 2205 | 2301 | SENDNFDR | FNUS46 | 2145 | | 2245 |
| San Diego | SENDOBS | SHUS66 | 2130 | 2200 | 2245 | SENDNFDR | FNUS46 | 2130 | 2200 | 2245 |

**NFDRS Forecast Interpretation**

a. **ZONE/FCST** - Shows whether this forecast is a zone trend (ZONE) or station trend (FCST) forecast. Trend forecasts (ZONEs) show how parameters will change over the next 24 hours for a group of stations contained in a given NFDRS trend zone. Note that a trend zone consists of several points rather than an area. The NFDRS trend forecast applies to every station within the trend zone. The WIMS catalogue determines which stations are within a trend zone. Occasionally a station within an NFDRS trend zone is not expected to trend the same way as the rest of the stations in the zone. In those cases, specific point forecast values (FCST) should be made for that station while a zone trend forecast is done which applies to the rest of the stations in the zone group. Specific forecast values (FCST) always are placed after the trend forecasts (ZONEs).

b. **YYMMDD** Year, month, and day valid forecast time.
c. **NO** NFDRS Zone Number (or individual NFDRS station number)
d. **13** Always 1300 LST
e. **WX** Weather valid at 1300 LST tomorrow. Valid entries are:

0 clear
1 scattered clouds (1/8 to 4/8)
2 broken clouds (5/8 to 7/8)
3 overcast clouds (more than 7/8)
4 foggy
5* drizzle
6* raining
7* snowing or sleeting
8 showers (in sight or at the station)
9 thunderstorm

***(Categories 5, 6, or 7 sets NFDRS components and indices to 0...use only with widespread precipitation)**

| | |
|---|---|
| f. **TEMP** | Temperature in degrees F. Valid at 1300 LST for FCST or temperature trend +/- for ZONE |
| g. **RH** | Relative humidity in %. Valid at 1300 LST for FCST or RH trend + or - for ZONE |
| h. **LAL1** | Lightning Activity Level 1300 LST to 2300 LST |
| i. **LAL2** | Lightning Activity Level 2300 LST to 2300 LST (next day) |
| j. **WIND** | Wind speed in mph. Valid at 1300 LST for FCST or wind speed trend + or - for ZONE **(20 ft level/10 min avg)** |
| k. **10HR** | 10-hour time lag fuel moisture in %. Valid at 1300 LST for FCST or trend + or - for ZONE |
| l. **Tx** | Max temperature from 1300 LST to 1300 LST tomorrow |
| m. **Tn** | Min temperature from 1300 LST to 1300 LST tomorrow |
| n. **RHx** | Max relative humidity from 1300 LST to 1300 LST tomorrow |
| o. **RHn** | Min relative humidity from 1300 LST to 1300 LST tomorrow |
| p. **PD1** | Precipitation duration in hours 1300 LST to 0500 LST |
| q. **PD2** | Precipitation duration in hours 0500 LST to 1300 LST |
| r. **WETFLAG** | Y or N. Indicates whether liquid water will be on the fuels at 1300 LST. **(Use with caution – a "Y" will set all the NFDRS indices to zero!)** |

The NFDRS trend forecast will follow the comma delimited format as shown:

ZONE,NO,YYMMDD,13,WX,TEMP(trend),RH(trend),LAL1,LAL2,WIND(trend),10HR(trend),PD1,PD2,WETFLAG

FCST,NO,YYMMDD,13,WX,TEMP(trend),RH(trend),LAL1,LAL2,WIND(trend),10HR(trend),PD1,PD2,WETFLAG

In California, the station specific point forecast is not normally used. The format for station specific point forecasts is:

FCST,NO,YYMMDD,13,WX,TEMP(specific),RH(specific),LAL1,LAL2,WIND(specific),10HR(specific),TX(specific), TN(specific),RHx(specific),RHn(specific),PD1,PD2,WETFLAG